

## INTERNATIONAL SEARCH REPORT

Internal Application No

PCT/IB2004/004363

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 C07C231/10 C07C233/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BEILSTEIN Data, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 194 050 A (HAZAMA MOTOO) 18 March 1980 (1980-03-18) cited in the application column 3, line 45 - line 68; examples 1-12 claims 1,2 ----- WO 99/18065 A (CHIROTECH TECHNOLOGY LTD) 15 April 1999 (1999-04-15) cited in the application page 5, line 24 - line 29; claims 1,6,7; examples 1-7 page 5, line 9 - line 23 ----- -/-	1,2,4-7
X		1,2,4-8

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

## \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

2 May 2005

19.07.05

## Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.  
Fax: (+31-70) 340-3016

## Authorized officer

Schuemacher, A

## INTERNATIONAL SEARCH REPORT

Internal Application No  
PCT/IB2004/004363

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Z.ZHANG, G.XHU, Q.JIANG, D.XIAO, X.ZHANG: "Highly eantioselective hydrogenation of cyclic enamides catalized by Rh-PennPhos Catalyst" JOURNAL OF ORGANIC CHEMISTRY, vol. 64, 1999, pages 1774-1775, XP002280541 cited in the application scheme 1, Tables 1 and 2 -----	1,2,4-7
Y	-----	10,11
X	BURK, MARK J. ET AL: "A Three-Step Procedure for Asymmetric Catalytic Reductive Amidation of Ketones" JOURNAL OF ORGANIC CHEMISTRY, 63(18), 6084-6085, 1998, XP002280540 cited in the application the whole document -----	1,2,4-8
Y	-----	10,11
X	LI, WENGE ET AL: "Synthesis of Chiral Hydroxyl Phospholanes from D-mannitol and Their Use in Asymmetric Catalytic Reactions" JOURNAL OF ORGANIC CHEMISTRY , 65(11), 3489-3496 CODEN: JOCEAH; ISSN: 0022-3263, 2000, XP001069473 page 3494; compound 29 -----	10,11

## INTERNATIONAL SEARCH REPORT

Int. ional application No.  
PCT/IB2004/004363

**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

**Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

**This International Searching Authority found multiple inventions in this international application, as follows:**

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-9

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

10/583902  
AP3 Rec'd PCT/PTO 21 JUN 2006

International Application No. PCT/ IB2004/ 004363

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9

process for the preparation of enamides of formula (I)  
according to claim 1

---

2. claims: 10,11

Use of the enamides of formula (IIE) according to claim 10  
in an hydrogenation reaction.

---

## INTERNATIONAL SEARCH REPORT

Information on patent family members

Internal Application No  
PCT/IB2004/004363

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 4194050	A 18-03-1980	JP	1340659 C	14-10-1986
		JP	52133905 A	09-11-1977
		JP	61006812 B	01-03-1986
		CH	630339 A5	15-06-1982
		DE	2718552 A1	10-11-1977
		FR	2349567 A1	25-11-1977
		GB	1526683 A	27-09-1978
		IT	1080382 B	16-05-1985
		NL	7704627 A	01-11-1977
		US	4137417 A	30-01-1979
WO 9918065	A 15-04-1999	AU	9275498 A	27-04-1999
		WO	9918065 A1	15-04-1999